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DOI: https://doi.org/10.1007/s00415-013-7028-6

J Neurol (2014) 261:1249–1250
DOI 10.1007/s00415-013-7028-6

PIONEERS IN NEUROLOGY

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Received: 16 May 2013 / Revised: 24 June 2013 / Accepted: 25 June 2013 / Published online: 9 July 2013

The visual system is one of the main interfaces between the brain and the environment, with a crucial role in both evolutionary and ontological terms. The Italian anatomist Bartolomeo Panizza was among the first to investigate the pathways and cortical localizations of this system.

He was born on August 17 (but others, such as [10], report August 15 as his birth date), 1785, in Vicenza [9]. Son of Adriana Scola (or Scala or Sola) and Bernardino Panizza, a distinguished physician [2], he was soon started by his father on the study of literature and philosophy. However, he soon moved to practice his theoretical studies because his rebellious soul rather led him to prefer the latter [1].

In 1802, Panizza applied to the University of Padua and in 1806 he graduated in surgery, mentored by Leopoldo Caldani and Michele Vincenzo Malacarne. He then went to Bologna to practice surgery with Giuseppe Atti and the scholar Giovan Battista Quadri, and later to Florence to further refine his medical knowledge with the anatomist Paolo Mascagni and the surgeon Angelo Nannoni [1].

Worried about the wandering of his son, Panizza's father decided to stop financing him, but he later allowed him to enroll for the medical degree at the University of Pavia on a minimum wage [1]. As a student of the anatomist Antonio Scarpa (1752–1832) [3], and a coworker of Bergonzi, Bufalini, Briffalini and Pirandi, he also learnt the surgical practice from Borda, Cairoli, Monteggia, Palletta, Rasori and Volpi, thus probably becoming "the most persistent and stubborn researcher of the University of Pavia" [1, 9]. However, in 1811 his father definitively removed his financial support; Panizza started to live in poverty until Paolo Azzolini hired him as assistant, giving him a domestic and funding supply [1].

Panizza volunteered to join Azzolini in the Russian Campaign, and, while crossing Germany, he met Samuel Thomas Sömmering [6]. During the Malo-Jaroslaw battle at Wilna, Panizza was captured while his mentor froze to death [5]. After two years of detention, he was freed on a

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prisoner exchange in 1814. He refused to pursue a military medical career and, back in Italy, sought assistance of Scarpa, who invited him to apply for the professorship position formerly assigned to Paolo Mascagni. Despite having no publications, Panizza was chosen as Full Professor of anatomy in 1817, aged 32, and held the position until his retirement in 1864. Following this assignment, evil tongues claimed he was Scarpa's son. He also held the Chair of ophthalmology in 1818, and in 1819 he established the first microscopic anatomy course in Italy; he was rector of the same athenaeum between 1826 and 1827 and dean of the Faculty of Medicine in 1856 and 1857 [10].

Despite a private life humbled by premature death of his two wives and a secret, but soon interrupted, love for his own sister-in-law, Panizza always found energy to pursue his investigations which led him to the Grand Award of Physiology of the Institute of France [10].

Panizza mainly studied the anatomo-physiology of several cranial nerves. In particular, he was the first to better understand the relationship of the optic nerve with other brain structures, such as the thalamus and the occipital cortex, both in animals and in humans. His findings were published on 1855, and further expanded in the following year [7] in the *Osservazioni sul nervo ottico*, a work ignored for a long time afterwards. He performed anatomical, experimental and human clinico-pathological studies which enabled him to describe the projection of the optic nerve to the cerebral structures by means of the atrophic degeneration method and, conversely, to induce permanent visual impairment after lesioning of brain centers of vision previously identified [8]. He was thus among the first to recognize the thalamus and the occipital lobe as the brain areas involved in vision. Before the seminal works of Paul Broca, Gustav Fritsch and Eduard Hitzig, he therefore crucially contributed to the functional localization within the cerebral cortex, and to the paradigm shift toward a vision of the brain as a complex of distinct, interconnected, anatomo-functional centers [4, 8].

Panizza's scientific contribution was even wider, ranging from the role of the veins in absorption to researches on the parotid gland, the lymphatic system and the treatment of cataract in humans [6], to comparative anatomy studies on amphibians, bears, birds, dogs, horses and reptiles [10]. In addition, he described the "foramen of Panizza", a hole with a valve connecting the left and right aorta in the superior side of the crocodilian cardiac septum, and confirmed the Bell–Magendie law.

A friend of Giambattista Amici, the inventor of the microscope and of the immersion optic system, Panizza's eponym was given to two plexuses in the lateral fossae of the frenulum of the prepuce. Authoritative and generous [5], he was a smart and didactic anatomy professor, speaking always off the cuff, his face suddenly reddening [1]. He loved wandering around the lecture hall, was more prone to the dialogue than his master Scarpa, and never hid his patriotic values to the young students. He was editor-in-chief of *La Gazzetta Medica Lombarda* from its inception in 1842 until his death.

Panizza enjoyed the very highest reputation among Italian and foreign scientists. Fellow of several scientific societies, in 1860 he was appointed Senator of the Reign of Italy for scientific merit [10], Knight (1838) and Commander (1857) of the Austrian Order of the Iron Crown, Knight of the Civil Order of Savoia (1859), Knight, Official (1860) and Commander (1863) of the Order of Saints Maurice and Saint Lazarus. In 1864 he was elected Emeritus Professor of Human Anatomy in Pavia and started to direct the Gabinetto of Human Anatomy.

He died in Pavia on April 17, 1867, leaving a fundamental contribution to neuroanatomy, neurophysiology and to the anatomical museum of the city of valuable preparations, with some of them awarded with a Gold Medal at the Universal Exhibition of London in 1862 [9, 10]. He is buried in the Monumental Cemetery of Pavia, near the tomb of Nobel Laureate Camillo Golgi, probably his most prominent pupil.

Conflicts of interest The authors state no conflict of interest is present.

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